

## AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions of claims in the application.

1.-60. (Cancelled)

61. (Withdrawn) A method of detecting and analyzing protein interactions in a cell, which comprises the steps:

- a) provision of the activity of at least one enzyme from the group consisting of recombinases and proteases in the cell as a result of a protein interaction,
- b) continual generation of an active reporter protein in the cell in question as a result of the enzymatic activity of step a) for a period of time which exceeds the duration of the protein interaction of step a),
- c) generation of a detection signal by the reporter proteins generated in b).

62. (Withdrawn) The method as claimed in claim 61, wherein:

- (1) the active reporter protein in step b) is continually generated in the cell in question for such a period of time which comprises the entire lifetime of the cell in question, and
- (2) the continual generation results in its accumulation in the cell in question or its daughter cells, said accumulation generating a detection signal which is increased compared to a detection signal generated by a reporter protein generated only for the duration of the protein interaction.

63. (Withdrawn) The method as claimed in claim 62, wherein the reporter protein is additionally generated in the daughter cells of the cell in question in such a way that the entire lifetime of said daughter cells is encompassed.

65. (Withdrawn) The method as claimed in claim 61, wherein the protein interaction to be detected or to be analyzed is a stimulus-induced protein interaction of a transient nature.

66. (Withdrawn) The method as claimed in claim 61, wherein the enzyme of step a) is a recombinase whose activity is provided by transfecting or infecting the cell with the expression vector i) which comprises a recombinase gene under the control of a transcription factor,

and the continual generation of the active reporter protein in the cell in question according to step b) is carried out by the individual steps:

b1) transfection or infection of the cell with a construct ii) which comprises a stop cassette flanked by recombination sites with the downstream nucleotide sequence of a reporter gene under the control of a constitutive promoter,

b2) removal of said stop cassette, flanked by recombination sites, of construct ii) by means of the recombinase of a),

b3) constitutive expression of the reporter gene.

67. (Withdrawn) The method as claimed in claim 66, wherein the transfections or infections of the cell are stable.

68. (Withdrawn) The method as claimed in claim 66, wherein the transfections or infections of the cell are transient.

69. (Withdrawn) The method as claimed in claim 66, wherein the reporter gene used is a gene from the group consisting of fluorescent reporter genes, reporter genes with enzymatic function, resistance-conferring genes and reporter genes for growth selection.

70. (Withdrawn) The method as claimed in claim 69, wherein the reporter gene used is the green fluorescent protein (GFP), any of its variants, luciferase or  $\beta$ -galactosidase.

71. (Withdrawn) The method as claimed in claim 61, wherein the enzyme of step a) is a recombinase whose activity is provided by the protein interaction-dependent transcomplementation of a functional recombinase in the nucleus,

and the continual generation of the active reporter protein in the cell in question according to step b) is carried out by the individual steps:

b4) transfection or infection of the cell with a construct ii) which comprises a stop cassette flanked by recombination sites with the downstream nucleotide sequence of a reporter gene under the control of a constitutive promoter,

b5) removal of said stop cassette, flanked by recombination sites, of construct ii) by means of the recombinase of a),

b6) constitutive expression of the reporter gene.

72. (Withdrawn) The method as claimed in claim 71, wherein transcomplementation of the functional recombinase is carried out by the steps:

d1) expression of a first fusion protein comprising the first interaction partner and part of the recombinase and of a second fusion protein comprising the second interaction partner and another part of the recombinase,

d2) reconstitution of a functional recombinase due to said first and second interaction partners interacting with one another in the nucleus.

73. (Withdrawn) The method as claimed in claim 61, wherein the activities of a protease and of a recombinase are provided and the activity of said protease arises from protein interaction-dependent transcomplementation of a functional protease.

74. (Withdrawn) The method as claimed in claim 73, wherein transcomplementation of the functional protease is carried out by the steps:

e) expression of  
e1) a first fusion protein comprising the first interaction partner and part of a protease,  
and  
e2) a second fusion protein comprising the second interaction partner and another part of said protease,

with, where appropriate, at least one of the two fusion proteins possessing a further domain which causes said fusion protein to be anchored outside the nucleus, and

e3) expression of a functional recombinase,  
which, where appropriate, is a further domain of the first or second fusion protein and can be proteolytically removed from the other domains via a recognition and cleavage site for the protease, or expression of a functional recombinase

on a third fusion protein which, in addition to the functional recombinase itself which is proteolytically removable via a recognition and cleavage site for the protease, comprises a further domain causing the third fusion protein to be anchored outside the nucleus,  
in a cell,

- f) reconstitution of a functional protease due to the first and second interaction partners interacting with one another,
- g) proteolytic removal of the functional recombinase from its anchoring position outside the nucleus by the reconstituted protease of f),
- h) transport of the functional recombinase into the nucleus and activation of a recombinase-dependent reporter gene.

75. (Withdrawn) The method as claimed in claim 74, wherein in step e) as component e3) a functional recombinase is expressed, which possesses at least one further domain which causes said recombinase to be anchored on the cell membrane and which is proteolytically removed in step g) from its anchoring position on the cell membrane.

76. (Withdrawn) The method as claimed in claim 61, wherein the activities of a protease and of a recombinase are provided and a protein interaction-imparted spatial proximity between said protease and its substrate is generated.

77. (Withdrawn) The method as claimed in claim 76, wherein the activity of the protease in the cell due to spatial proximity between said protease and its substrate is generated by the steps:

- j) expression of
  - j1) a first fusion protein comprising the first interaction partner and a functional protease, and
  - j2) a second fusion protein comprising the second interaction partner, a functional recombinase domain and a further domain causing anchoring outside the nucleus, with at least said functional recombinase domain being proteolytically removable from the domain which causes the second fusion protein to be anchored outside the nucleus, via a recognition and cleavage site of the protease used,
- in the cell,
- k) effecting a spatial proximity, resulting from the interaction of the first and the second interaction partner, between the functional protease of the first fusion protein and the protease recognition and cleavage site on the second fusion protein,

l) proteolytically removing the functional recombinase anchored outside the nucleus by cleaving the protease cleavage site with the proximal protease, transporting the free functional recombinase into the nucleus and activating a reporter system.

78. (Withdrawn) The method as claimed in claim 61, wherein the reporter protein of step b) is provided in the cell in question by, as a direct or indirect result of protein interaction, a specific functional transcription factor which induces or increases expression of said reporter protein being provided in the nucleus of said cell.

79. (Withdrawn) The method as claimed in claim 78, wherein the specific functional transcription factor in the nucleus of the cell is provided by protein interaction-dependent transcomplementation of a functional transcription factor in said nucleus.

80. (Withdrawn) The method as claimed in claim 79, wherein transcomplementation of the functional transcription factor comprises the steps:

m) expression of a first fusion protein comprising the first interaction partner and part of the transcription factor and of a second fusion protein comprising the second interaction partner and another part of the transcription factor,

n) reconstitution of a functional transcription factor due to said first and second interaction partner interacting with one another,

o) induction of expression of a functional recombinase for activation of a recombinase-dependent reporter system in the nucleus.

81. (Withdrawn) The method as claimed in claim 78, wherein the functional transcription factor is provided by protein interaction-imparted proximity between a protease and its substrate.

82. (Withdrawn) The method as claimed in claim 81, wherein the spatial proximity between the protease and its substrate is generated by the steps:

j) expression of

- j1) a first fusion protein comprising the first interaction partner and a functional protease, and
- j2) a second fusion protein comprising the second interaction partner, a functional transcription factor domain and a further domain causing anchoring outside the nucleus, with at least said functional transcription factor domain being proteolytically removable from the domain which causes the second fusion protein to be anchored outside the nucleus, via a recognition and cleavage site of the protease used,
  - in the cell,
- k) effecting a spatial proximity, resulting from the interaction of the first and the second interaction partner, between the functional protease of the first fusion protein and the protease recognition and cleavage site on the second fusion protein,
- l) proteolytically removing the functional transcription factor anchored outside the nucleus by cleaving the protease cleavage site with the proximal protease, transporting the free functional transcription factor into the nucleus and activating a reporter system.

83. (Withdrawn) The method as claimed in claim 78, wherein the transcription factor is provided by protein interaction-dependent transcomplementation of a protease.

84. (Withdrawn) The method as claimed in claim 83, wherein transcomplementation of the protease is achieved by the steps:

- p) expression of
  - p1) a first fusion protein comprising the first interaction partner and part of a protease,and
  - p2) a second fusion protein comprising the second interaction partner and another part of said protease,

with, where appropriate, at least one of the two fusion proteins possessing a further domain which causes the fusion protein to be anchored outside the nucleus, and

- p3) expression of a functional transcription factor,

which, where appropriate, is a further domain of the first or second fusion protein and which is proteolytically removable from the other domains of said fusion protein via a recognition and cleavage site for a protease, or

expression of a functional transcription factor on a third fusion protein which, in addition to the functional transcription factor itself which is proteolytically removable via a recognition and cleavage site for said protease, comprises a further domain which causes said third fusion protein to be anchored outside the nucleus;

in a cell;

q) reconstitution of a functional protease due to the first and second interaction partners interacting with one another;

r) proteolytically removing the functional transcription factor from its anchoring position outside the nucleus by the reconstituted protease of q)

s) providing a functional transcription factor in the nucleus and subsequently inducing expression of a recombinase-dependent or a recombinase-independent classical reporter system.

85. (Withdrawn) The method as claimed in claim 84, wherein the functional transcription factor proteolytically removed in step r) causes in step s) in the nucleus induction of expression of a recombinase-independent classical reporter system and additionally causes induction of the expression of a functional protease for further continual activation of the reporter system employed.

86. (Currently Amended) A method of detecting and analyzing protein interactions in a cell, which comprises the steps:

a) ~~expression of~~ expressing

a1) a first fusion protein comprising the first interaction partner and a part of a ~~Tobacco Etch Virus (TEV) protease~~ the 27 kDa NIa protease of tobacco etch virus, wherein the part of the NIa protease alone does not have proteolytic activity, and

- a2) a second fusion protein comprising the second interaction partner and another part of said [[TEV]] NIa protease, wherein the part of the NIa protease alone does not have proteolytic activity, and
- a3) a reporter protein, whose reporter activity can be activated or inactivated by proteolysis,

in the cell,

- b) ~~reconstitution of~~ reconstituting a functional [[TEV]] NIa protease ~~due to via interaction of said first and second interaction partners interacting with one another,~~
- c) detecting and analyzing activation of the proteolysis-activatable or inactivation of the proteolysis-inactivatable reporter protein by the reconstituted functional [[TEV]] NIa protease of step b),

wherein said reporter protein is selected from the group consisting of recombinases, transcription activators, fluorescent proteins, luciferases, beta-galactosidase, alkaline phosphatases, beta-lactamase, proteins and enzymes conferring resistance to cytotoxic substances or minimal media, cytotoxic or pro-apoptotic proteins, and proteins altering the growth or morphology of the cell in which they are expressed.

87. (Currently Amended) The method as claimed in claim 86, wherein said reporter protein expressed in step a3) is a proteolysis-activatable reporter protein whose reporter activity has been inactivated by insertion of an additional amino acid sequence which is flanked on one side or on both sides by at least one recognition site or cleavage site for the [[TEV]] NIa protease.

88. (Currently Amended) The method as claimed in claim 86, said reporter protein expressed in step a3) is a proteolysis-inactivatable reporter protein which contains at least one recognition and cleavage site for the [[TEV]] NIa protease and whose reporter activity can be proteolytically inactivated.

89. (Withdrawn) A method of detecting and analyzing protein interactions in a cell, which comprises the steps:

- x) expression of



x1) a first fusion protein comprising the first interaction partner and a functional protease, and  
x2) a second fusion protein comprising the second interaction partner and a reporter which can be activated or inactivated by proteolysis, in the cell;  
y) interaction of said first and second interaction partners with one another;  
z) activation of the proteolysis-activatable reporter or inactivation of the proteolysis-inactivatable reporter by protein interaction-dependent spatial proximity of the functional protease of the first fusion protein x1) and the proteolysis-activatable or -inactivatable reporter of the second fusion protein x2).

90. (Withdrawn) The method as claimed in claim 61, wherein the enzyme of step a) is a protease and in that continual generation of the active reporter protein in the cell in question according to step b) is carried out by the individual steps:

A) expression of  
A1) a first fusion protein comprising the first interaction partner and part of a protease, and  
A2) a second fusion protein comprising the second interaction partner and another part of said protease, and  
A3) a protease which can be activated by proteolysis, in the cell,  
B) transcomplementation of a functional protease due to said first and second interaction partners interacting with one another,  
C) activation of the proteolytically activatable proteases by the transcomplemented functional protease of step B),  
D) activation or inactivation of a proteolytically activatable or a proteolytically inactivatable reporter system by the functional proteases of steps B) and C).

91. (Withdrawn) A method of detecting and analyzing protein interactions in a cell, which comprises the steps

- J) expression of
- J1) a first fusion protein comprising the first interaction partner and part of a protease,  
and
- J2) a second fusion protein comprising the second interaction partner and another part  
of said protease, and
- J3) constitutive expression of a reporter protein which is anchored via a suitable  
domain outside the nucleus and which can be proteolytically removed from said anchoring  
position, and additionally comprises a further domain which, after proteolytic removal, effects  
localization of said reporter protein into a particular compartment of the cell,  
in the cell,
- K) reconstitution of a functional protease due to said first and second interaction  
partners interacting with one another,
- L) proteolytically removing the reporter protein together with its domain which  
causes localization of the free reporter protein into a particular compartment of the cell, by the  
functional protease of step K),
- M) detecting the altered location of the reporter protein.

92. (Withdrawn) A screening method of identifying a specific interaction partner of a  
defined protein by carrying out the method as claimed in claim 1.

93. (Withdrawn) The screening method as claimed in claim 92, wherein a specific  
interaction partner of the defined protein is identified by expressing a cDNA library or an ORF  
library.

94. (Withdrawn) The screening method as claimed in claim 92, wherein it is used for  
identifying substances which influence, in particular inhibit or activate, a specific protein  
interaction.

95. (Withdrawn) A method of detecting and analyzing the disassociation of a defined  
protein interaction in a cell, which comprises the steps:

- P) provision of the activity of at least one enzyme from the group consisting of  
recombinases and proteases in the cell as a result of the dissociation of a protein interaction,

Q) continual generation of an active reporter protein in the cell in question as a result of the enzyme activity of step P) for a period of time which exceeds the duration of the dissociated state of the protein interaction,

R) generation of a detection signal by the reporter proteins generated in Q).

96. (Withdrawn) The method as claimed in claim 95, wherein the active reporter protein in step Q) is continually generated for such a period of time which comprises the entire lifetime of the cell in question.

97. (Withdrawn) The method as claimed in claim 96, wherein the active reporter protein in step Q) is additionally generated in the daughter cells of the cell in question in such a way that the entire lifetime of said daughter cells is comprised.

98. (Withdrawn) The method as claimed in claim 95, wherein continual generation of the active reporter protein according to step Q) results in the accumulation of said active reporter protein in the cell in question or its daughter cells, said accumulation generating a detection signal which is increased compared to such a detection signal which is increased compared to a detection signal generated by a only for the duration of the dissociation of the protein interaction.

99. (Withdrawn) The method as claimed in claim 95, wherein the dissociation to be detected or analyzed of a protein interaction is a stimulus-induced dissociation of a transient nature.

100. (Withdrawn) The method as claimed in claim 95, wherein the dissociation of the protein interaction is caused by at least one of the events selected from:  
the presence of a specific inhibitor of said protein interaction, and  
the presence of a stimulus influencing said protein interaction.

101. (Withdrawn) The method as claimed in claim 95, wherein the enzyme of step P) is a recombinase and in that continual generation of the active reporter protein in the cell in question according to step Q) is carried out by the individual steps:

- S) expression and specific interaction of
- S1) a first fusion protein comprising the first interaction partner and a functional recombinase, and
- S2) a second fusion protein comprising the second interaction partner and an inhibitor of said recombinase,
- in the cell,
- T) induced dissociation of the interacting fusion proteins, thereby removing the proximity between the recombinase and its inhibitor and providing a functional recombinase,
- U) activation of a recombinase-dependent reporter system by the functional recombinase of step T).

102. (Withdrawn) The method as claimed in claim 95, wherein the enzyme of step P) is a recombinase and continual generation of the active reporter protein in the cell in question according to step Q) is carried out by providing, as a result of dissociation of the defined protein interaction, in the nucleus of said cell a specific functional transcription factor which induces or increases expression of a recombinase, said recombinase subsequently activating a recombinase-dependent reporter gene.

103. (Withdrawn) The method as claimed in claim 95, wherein continual generation of the active reporter protein in the cell in question according to step Q) is carried out by the steps:

- V) expression and specific interaction of
- V1) a first fusion protein comprising the first interaction partner and a functional protease, and
- V2) a second fusion protein comprising the second interaction partner and an inhibitor for said functional protease, and
- with, where appropriate, at least one of the two fusion proteins possessing a further domain resulting in the anchoring of the fusion protein outside the nucleus, and
- V3) expression of a functional protein selected from the group consisting of transcription factors, recombinases and proteolytically activatable or inactivatable reporter proteins,

which protein, where appropriate, is a further domain of the first or the second fusion protein and which is proteolytically removable from the remaining domains by a recognition and cleavage site for the protease,

or which, where appropriate, is a further constitutively expressed fusion protein and a domain for anchoring outside the nucleus and which is proteolytically removable from its anchoring position via a recognition and cleavage site for said protease,

V4) where appropriate, expression of a proteolytically activatable protease, in the cell,

W) induced dissociation of the interacting fusion proteins, thereby removing the proximity between the protease and its inhibitor and providing a functional protease,

X) proteolytically removing the functional recombinase or the functional transcription factor of V3) from its anchoring position outside the nucleus by the functional protease of step W) and transport into the nucleus,

Y) activation of a recombinase-dependent reporter system or proteolytic activation of the proteolytically activatable protease of V4) by the functional protease of step W),

Z) activation or inactivation of the proteolytically activatable or inactivatable reporter proteins of V3) by the functional proteases of step W) and of step Y).

104. (Withdrawn) The method as claimed in claim 103, wherein in step V) as the functional protein V3) a functional transcription factor proteolytically removable from its anchoring position outside the nucleus is expressed, which transcription factor is proteolytically removed in step X) by the functional protease of step W) and which activates in step Y) a recombinase-dependent reporter system.

105. (Withdrawn) The method as claimed in claim 103, wherein a further functional protein V3) expressed in step V) is a functional recombinase proteolytically removable from its anchoring position outside the nucleus, which recombinase is removed in step X) from its anchoring position by the functional protease of step W) and which activates in step Y) a recombinase-dependent reporter gene.

106. (Withdrawn) The method as claimed in claim 103, wherein the functional protein V3) expressed in step V) is a proteolytically activatable or inactivatable reporter protein and the proteolytically activatable protease V4) is expressed which is proteolytically activated in step Y) by the functional protease of step W) and which activates or inactivates in step Z) a proteolytically activatable or inactivatable reporter protein.

107. (Withdrawn) A screening method of identifying or characterizing specific inhibitors or activators of a defined protein interaction or of identifying or characterizing a defined stimulus influencing a defined protein interaction, carrying out the method as claimed in claim 95.

108. (Withdrawn) A cell which has been transfected or infected with at least one expression vector, the latter comprising at least one, preferably at least two, in particular at least three, of the constructs i) to v), and with

- i) a construct comprising a recombinase which is anchored outside the nucleus and which can be proteolytically removed,
- ii) a construct comprising a transcription factor which is anchored outside the nucleus and which can be proteolytically removed,
- iii) a construct comprising a proteolytically activatable or inactivatable reporter protein,
- iv) a construct comprising a proteolytically activatable protease,
- v) a protease gene under the control of a transcription factor.

109. (Withdrawn) A cell which has been transfected or infected with at least one expression vector, the latter comprising at least one of the constructs i) to ii), and additionally at least one, preferably at least two, in particular at least three, of the constructs iii) to vii), and with

- i) a construct comprising a recombinase gene being under the control of a transcription factor
- ii) a construct comprising a stop cassette flanked by recombination sites with the downstream nucleotide sequence of a reporter gene under control of a constitutive promoter,
- iii) a construct comprising a recombinase which is anchored outside the nucleus and which can be proteolytically removed,

- iv) a construct comprising a transcription factor which is anchored outside the nucleus and which can be proteolytically removed,
- v) a construct comprising a proteolytically activatable or inactivatable reporter protein,
- vi) a construct comprising a proteolytically activatable protease,
- vii) a protease gene under the control of a transcription factor.

110. (Withdrawn) The cell as claimed in claim 108, wherein said cell has been stably transfected or infected.

111. (Withdrawn) The cell as claimed in claim 109, wherein said cell has been stably transfected or infected.

112. (Withdrawn) The cell as claimed in claim 108, wherein said cell has been transiently transfected or infected.

113. (Withdrawn) The cell as claimed in claim 109, wherein said cell has been transiently transfected or infected.

114. (Withdrawn) The cell as claimed in claim 108, wherein said cell is selected from the group consisting of bacterial cells, yeast cells or cells of higher eukaryotes, in particular neuronal cells or mammalian cell lines.

115. (Withdrawn) The cell as claimed in claim 109, wherein said cell is selected from the group consisting of bacterial cells, yeast cells or cells of higher eukaryotes, in particular neuronal cells or mammalian cell lines

116. (Withdrawn) A kit for detecting and analyzing protein interactions in a cell, which comprises the expression vectors comprising the nucleic acid constructs 1a) and 2a), in each case under the transcriptional control of a heterologous promoter:

1a) a first nucleic acid construct coding for a first fusion protein comprising the nucleic acid sequence coding for a first protease fragment and a cloning site suitable for cloning the bait protein in the reading frame of the first protease fragment, and

2a) a second nucleic acid construct coding for a second fusion protein comprising the nucleic acid sequence coding for a second protease fragment and a cloning site suitable for cloning the prey protein in the reading frame of the second protease fragment,

and which, where appropriate, comprises expression vectors comprising at least one of the following constructs:

3a) a nucleic acid construct coding for a functional recombinase or for a functional transcription factor which can be proteolytically removed via a recognition and cleavage site for a protease from a domain for anchoring to a cytoplasmic structure, it being possible for said components to be used either as further moieties of the first or second fusion protein or as separate third fusion protein;

4a) a nucleic acid construct coding for a recombinase under the control of the functional transcription factor of No. 3;

5a) a nucleic acid construct comprising a stop cassette flanked by recognition sites for recombinases with the downstream nucleotide sequence of a reporter gene under the control of a constitutive promoter;

6a) a nucleic acid construct coding for a proteolytically activatable or proteolytically inactivatable reporter protein under the control of a promoter;

7a) a nucleic acid construct coding for a proteolytically activatable protease under the control of a promoter.

117. (Withdrawn) A kit for detecting and analyzing protein interactions in a cell, which comprises expression vectors comprising the nucleic acid constructs 1b) and 2b), in each case under the transcriptional control of a heterologous promoter:

1b) a first nucleic acid construct coding for a first fusion protein comprising the nucleic acid sequence coding for a functional protease and a cloning site suitable for cloning the first interaction partner into the reading frame of said functional protease, and

2b) a second nucleic acid construct coding for a second fusion protein comprising



the nucleic acid sequence coding for a protein selected from the group consisting of recombinases, transcription factors and reporter proteins,  
a cloning site suitable for cloning the second interaction partner into the reading frame of said protein,  
and, where appropriate, a nucleic acid sequence coding in the reading frame of said protein for a protein domain resulting in the second fusion protein being anchored outside the nucleus,  
and, where appropriate, which comprises expression vectors which comprise at least one of the constructs:

3b) a construct for expressing a recombinase gene under the control of the functional transcription factor of No. 2;

4b) a construct which comprises a stop cassette flanked by recognition sites for recombinases with the downstream nucleotide sequence of a reporter gene under the control of a constitutive promoter.

118. (Withdrawn) A kit for detecting and analyzing protein interactions in a cell, which comprises expression vectors comprising at least one of the nucleic acid constructs 1c) and 2c), in each case under transcriptional control of a heterologous promoter:

1c) a first nucleic acid construct coding for a first fusion protein, comprising the nucleic acid sequence coding for a first part of a protein selected from the group consisting of transcription factors or recombinases and a cloning site suitable for cloning the first interaction partner into the reading frame of said protein,

2c) a second nucleic acid construct coding for a second fusion protein, comprising the nucleic acid sequence coding for a second part of a protein selected from the group of transcription factors or recombinases and a cloning site suitable for cloning the second interaction partner into the reading frame of said protein,

and which comprises, where appropriate, expression vectors comprising at least one of the following constructs:

3c) a construct for expressing a recombinase gene under the control of the functional, transcomplemented protein of No. 1 and 2, said protein being a transcription factor;

4c) a construct comprising a stop cassette flanked by recognition sites for recombinases with the downstream nucleotide sequence of a reporter gene under the control of a constitutive promoter.

119. (Withdrawn) A kit for detecting and analyzing protein interactions in the cell, which comprises at least one expression vector comprising at least one of the nucleic acid constructs 1d) and 2d), in each case under the transcriptional control of a heterologous promoter:

1d) a first nucleic acid construct coding for a first fusion protein comprising a functional enzyme from the group consisting of proteases or recombinases and a bait protein, and

2d) a second nucleic acid construct coding for a second fusion protein comprising a functional inhibitor for an enzyme of the group consisting of proteases and recombinases and a prey protein.

120. (Withdrawn) The kit as claimed in claim 117, wherein a cDNA library for screening for interaction partners of the bait protein has been cloned into the cloning site of the second fusion protein according to 2a), 2b) and 2c).

121. (Withdrawn) The kit as claimed in claim 118, wherein a cDNA library for screening for interaction partners of the bait protein has been cloned into the cloning site of the second fusion protein according to 2a), 2b) and 2c).

122. (Withdrawn) The kit as claimed in claim 119, wherein a cDNA library for screening for interaction partners of the bait protein has been cloned into the cloning site of the second fusion protein according to 2a), 2b) and 2c).

123. (Currently Amended) The method as claimed in claim 86, wherein the part of the [[TEV]] NIa protease in a1) and the part of the [[TEV]] NIa protease in a2) are generated by dividing a functional [[TEV]] NIa protease at a position between amino acids 60 and 80 or at a position between amino acids 95 and 120, wherein the NIa protease comprises an amino acid

sequence having a catalytic triade comprising histidine at position 46, aspartate at position 81 and cysteine at position 151.

124. (Currently Amended) The method as claimed in claim 86, wherein the part of the [[TEV]] Nla protease in a1) and the part of the [[TEV]] Nla protease in a2) overlap.

125. (Currently Amended) The method as claimed in claim 86, wherein the part of the [[TEV]] Nla protease in a1) and the part of the [[TEV]] Nla protease in a2) are the [[TEV]] Nla protease fragments Gly1-Thr70 and Thr71-Gly243, respectively, wherein the Nla protease comprises an amino acid sequence having a catalytic triade comprising histidine at position 46, aspartate at position 81 and cysteine at position 151.

126. (Currently Amended) The method as claimed in claim 86, wherein the part of the [[TEV]] Nla protease in a1) and the part of the [[TEV]] Nla protease in a2) are the [[TEV]] Nla protease fragments Gly1-Thr118 and Lys119-Gly243, respectively, wherein the Nla protease comprises an amino acid sequence having a catalytic triade comprising histidine at position 46, aspartate at position 81 and cysteine at position 151.

127. (Currently Amended) The method as claimed in claim 86, wherein the part of the [[TEV]] Nla protease in a1) and the part of the [[TEV]] Nla protease in a2) are the [[TEV]] Nla protease fragments Gly1-Thr70 and His61-Gly243, respectively, , wherein the Nla protease comprises an amino acid sequence having a catalytic triade comprising histidine at position 46, aspartate at position 81 and cysteine at position 151.